REMARKS/ARGUMENTS

Claims 1 to 22 have been amended to emphasize the fact that the subject system is remote

from the power source being monitored. Claims 23 and 24 have been added to more clearly

define the fact that the subject system is suitable for use with both AC and DC power supplies.

Claims 5, 9, 10 and 11 and lacking clarity and antecedent basis. These claims have been

appropriately amended to overcome this objection.

Claims 2, 8, 13 and 20 were rejected under 35 U.S.C. § 112, second paragraph as being

indefinite. These claims have been amended to overcome this ground of rejection.

Claim 11 was rejected under 35 U.S.C. § 102(b) as being anticipated by Wiley et al.

Claims 1 to 4, 6, 7, 9, 10, 12 to 19, 21 and 22 were rejected under 35 U.S.C. § 103(a) as being

unpatentable over Wiley et al in view of Baker. Applicant respectfully traverses both of these

grounds of rejection for the reasons discussed below

The present system is intended primarily to monitor VRLA battery system performance

under the normal operating conditions unique to each site. VRLA battery technology presents

limitations as to the number of charge/discharge cycles, therefore the present system adds no

further charge/discharge cycle requirements beyond that provided-for or suggested by

the equipment manufacturer or operator preference. Previously disclosed systems use broad-

range assumptions of specifications in order to determine correct operating parameters. The

battery charging circuitry of modern UPS systems is designed to effectively maximize the

longevity of their batteries. This is especially evident in the true-online systems and better

quality external chargers. This forms the customer base for the present invention which,

therefore, makes no attempt to interfere with the battery system or charging design. It is

generally recognized that VRLA batteries are more sensitive to extremes of temperature and improper charging. Thus with the subject system in place the customer will be notified with suggestions for correcting improper operation of their system's battery charger or environmental factors which might adversely affect the longevity of the batteries. Frequent cycling to battery operation would identify insufficient minimum utility quality or improper setup of the equipment for a particular installation.

The Wiley et al. System is an online system. The subject system is in itself, a Web Server. The subject system measures data: voltage from each battery's terminal; battery charge or discharge current; ambient temperature; mains power sense; and AC load currents.

In the case of monitored UPS systems, the subject invention will be powered from the output of the UPS equipment. When under battery operation, the UPS inverter will be stopped upon reaching a pre-determined low-battery-voltage condition. The data captured during this process is saved in non-volatile memory in the subject equipment, therefore there is no justification for powering unit beyond the shutdown of output. Under exceptional circumstances, such as telecom battery systems, a separate UPS with backup time can be determined and offered per application requirements.

Each battery system is connected to a relatively simple battery monitoring system which functions independently as its own Web server, enabling the customer to view and retrieve real-time monitored data in a user-friendly format, with alarms and improper conditions immediately identified.

Unlike the reference patent, malfunction of the present system presents no threat to nor has any impact on the manufacturer's warranty. The current technology system of Wiley et al. uses a load tester, periodically switched to the individual batteries to determine their requirement for charging and insertion of a current shunt. The subject unit requires no modification to the

design or system parameters, as defined by the equipment's manufacturer, installer or customer preferences. AC load passes through the Hall C. T. (current transformer) units, with total isolation and fault tolerance.

The present design criteria includes that the equipment provided to the customer site be as least disruptive and at the lowest cost. This system monitors. This system requires no user programming. The effectiveness of this system lies in the reception and processing of actual system operational data. Processed data reflects the UPS system observed under normal operating conditions including owner-scheduled automatic or manually operated internal self-tests. This system is self-contained and serves as its own web server.

The subject system not only identifies each battery and its operating conditions, but also locally provides a physical map of the equipment to which it is connected. Servicing personnel have password-protected access to screens displaying this physical mapping of the batteries with each unique enclosure, with the battery terminal voltages indicated, and problem batteries identified by color coding. This is a 3D representation of the battery system and the batteries in question within that image. This serves to localize problem and servicing in minimal time.

Information of current battery and system status, operational condition and alarms are available for access at any time with the present system. Upon initial password-protected log-in, the customer is immediately presented with any audible alarm and instructions. Software enables the customer to view and retrieve real-time monitored data. Using GUIs, the data is displayed in user-friendly format.

The present system relies heavily upon the Central Monitoring Site. It uses highly complex Central Office Software at this central site in order to maintain initial and historic data, and for trending and analysis. The central site is the location of the web server(s) and archive

files and is accessed by the customer and/or service personnel via the Internet. This central

monitoring station will perform complex calculations and manipulation of data for all customers.

This system does not use the primary software at the customer site. That software is very small

in size and requires minimal space and PC requirements. The primary application software

resides at the Central Monitoring Site where it is protected from piracy and hacking. Every

customer will realize an upgrade immediately. The remote software can be flashed from the

Central site to upgrade or repair as needed.

Among the unique features of this invention is that this will plot recent battery discharge

characteristics and compare those with initial as well as historic discharge curves, comparing this

data with the battery manufacturer's data sheets.

Although current data is available as a website to customer, our system, using

performance of unmodified equipment, provides a more cost-effective approach.

None of the systems previously disclosed utilize specifications provided by the

manufacturer of the particular batteries used in each unique installation. Surveillance of the

battery systems performance vs. design specifications will prove effective in the early prediction

of battery failure.

Any current circulating in parallel-connected battery strings, when such system is

operating in battery-backup mode, indicate defective batteries or battery hardware, mismatched

battery types or inappropriate or defective cabling. This system captures that information.

Input isolation is calibrated and system configured prior to leaving plant. Installation required

opening battery string and passing wire through Hall C. T. device and connection to each battery

using custom adaptors. The battery configuration is programmed; mains voltage and power-fail
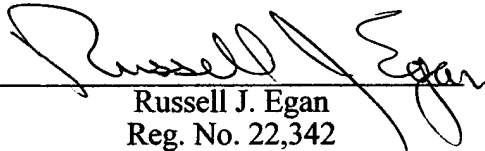
voltage selection is made.

The Baker et al patent discloses a SCADA system, controlling processes via Internet Web. The present invention does not control processes, but takes advantage of the Internet to receive data at a Central Monitoring Site. The CMS processes takes the received data and processes that data into graphs and reports as discussed further in Wiley et al. Baker et al adds nothing to Wiley et al to overcome the above discussed deficiencies of the primary reference in anticipating the present invention.

Claims 5, 8, 11 and 20 were not rejected on art related grounds and, since the stated informalities have been corrected, these claims are assumed to be allowable if rewritten into independent form.

Attached is check # in the amount $18.00 of in payment for the additional two claims

Applicant respectfully requests reconsideration and a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Amendments to the Drawings-

The attached two sheets of drawings include Figs. 1 and 2, replace the original sheets including Fig. 1-2.

Attachment: Replacement Sheets